
SECTION 1

ABOUT ILRS



FRASER PANGLOSS



SECTION 1

ILRS ORGANIZATION

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The Mission of the ILRS

The International Laser Ranging Service (ILRS) organizes and coordinates Satellite Laser Ranging (SLR) and Lunar Laser Ranging (LLR) to support programs in geodetic, geophysical, and lunar research activities and provides the International Earth Rotation and Reference Frame Service (IERS) with products important to the maintenance of an accurate International Terrestrial Reference Frame (ITRF). This reference frame provides the stability through which systematic measurements of the Earth can be made over thousands of kilometers, decades of time, and evolution of measurement technology. The Service provides precision ephemerides to support active Earth sensing missions and is now preparing to support extraterrestrial missions with optical transponders. The ILRS is one of the technique services of the International Association of Geodesy (IAG).

The Role of the ILRS

The International Laser Ranging Service (ILRS):

- coordinates activities for the international network of SLR stations;
- develops the standards and specifications necessary for product consistency;
- develops the priorities and tracking strategies required to maximize network efficiency;
- collects, merges, analyzes, archives and distributes satellite and lunar laser ranging data to satisfy user needs;
- provides quality control and engineering diagnostics to the global network;
- works with new satellite missions in the design and building of retroreflector targets to maximize data quality and quantity;
- works with science programs to optimize scientific data yield; and
- encourages the application of new technologies to enhance the quality, quantity, and cost effectiveness of its data products;

ILRS Data Products

Official Submission to the IERS

- Weekly solutions for station coordinates and Earth Orientation Parameters (EOPs) for the derivation of scale (Gm) and time-varying Earth Center of Mass for the ITRF

Other User Products

- Static and time-varying coefficients of the Earth's gravity field
- Accurate satellite ephemerides for POD and validation of altimetry, relativity, and satellite dynamics
- Backup POD for other missions
- Lunar ephemeris for relativity studies and lunar libration for lunar interior studies

The Structure of the ILRS

The ILRS is composed of the following components, shown in Figures 1-1 and 1-2:

- Forty Satellite Ranging Stations that provide ranging data on an hourly basis and two Lunar Ranging Stations;
- Three Operations Centers that collect and verify the satellite data and provide the Stations with sustaining engineering, communications links, and other support;
- Two Global Data Centers that receive and archive data and supporting information from the Operations Centers and provide these data to the Analysis Centers; and receive and archive ILRS scientific data products from the Analysis Centers and provide them to the users;
- Two Combination Centers that prepare the ILRS weekly data product for the IERS; six SLR Analysis Centers that provide the input solutions to the Combination Centers for the data product process, eighteen Associate Analysis Centers that provide specialized SLR products to the users community and provide a second level of data quality assurance in the network; and four Lunar Analysis Centers that provide lunar data products;
- Five ILRS Working Groups that provide technical expertise and help formulate policy;
- ILRS Central Bureau that is responsible for the daily coordination and management of ILRS activities including communications and information transfer, monitoring and promoting compliance with ILRS network standards, monitoring network operations and quality assurance, maintaining documentation and databases, and organizing meetings and workshops;
- Governing Board that is responsible for general direction, defining official ILRS policy and products, determining satellite-tracking priorities, developing standards and procedures, and interacting with other services and organizations.

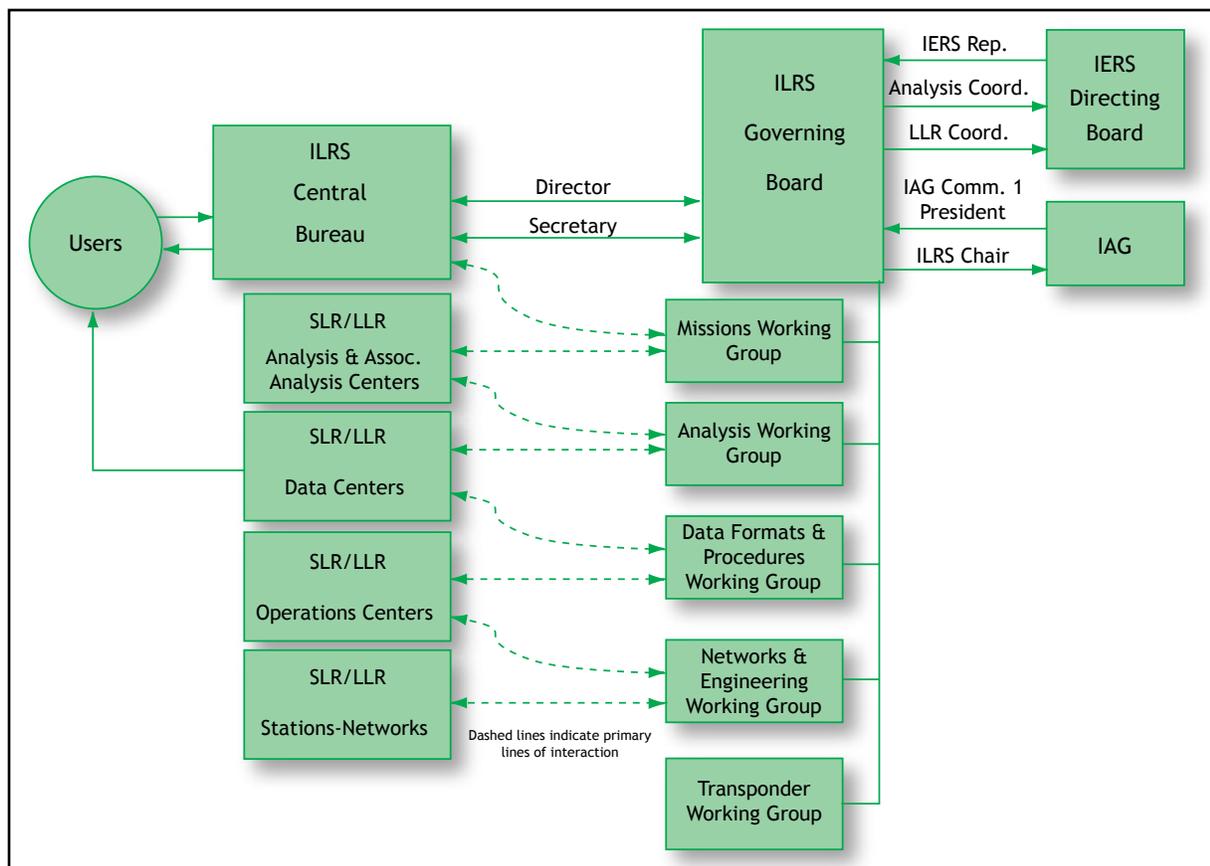


Figure 1-1. ILRS Organization

ILRS Information and Outreach

The ILRS Central Bureau (staff shown in Figure 1-3) maintains a comprehensive Web site as the primary vehicle for the distribution of information within the ILRS community. The site, which can be accessed at: <http://ilrs.gsfc.nasa.gov> is also available at a mirrored site at the European Data Center (EDC) in Munich. The ILRS also provides service-wide bulletins on SLRmail and ILRS exploders and specialized bulletins through Working Group and Urgent Mail exploders.



*Figure 1-3. ILRS Central Bureau staff (left to right): Jan McGarry, Carey Noll, Erricos Pavlis, Frank Lemoine, Michael Pearlman, Mark Torrence, Peter Dunn, Julie Horvath, and Curtis Emerson.
Other members not present: David Carter, Bart Clarke, Mark Davis,
Bud Donovan, Randy Ricklefs, and Scott Wettzel.*

ILRS GOVERNING BOARD



Name: Graham Appleby

Position: At-Large Representative

Affiliation: Natural Environmental Research Center (NERC) Space Geodesy Facility (NSGF), UK

Name: Yang Fumin

Position: WPLTN Network Representative

Affiliation: Shanghai Astronomical Observatory (SAO), China



Name: Giuseppe Bianco

Position: EUROLAS Network Representative

Affiliation: Agenzia Spaciale Italiana (ASI), Italy

Name: Werner Gurtner

Position: Chairman and EUROLAS Network Representative

Affiliation: Astronomical Institute, University of Bern (AIUB), Switzerland



Name: David Carter

Position: NASA Network Representative

Affiliation: NASA Goddard Space Flight Center, USA

Name: Georg Kirchner

Position: At Large Representative

Affiliation: Austrian Academy of Sciences, Austria



Name: Zuheir Altamimi

Position: Ex-Officio, President of IAG Commission 1

Affiliation: Institut Géographique National, France

Name: Ramesh Govind

Position: WPLTN Network Representative

Affiliation: Geoscience Australia, Australia



ILRS Governing Board (continued)



Name: Vincencia Luceri
Position: Analysis Center Representative
Affiliation: Telespazio S.p.A./Centro di Geodesia Spaziale, Italy

Name: Erricos Pavlis
Position: Analysis Center Representative
Affiliation: Joint Center for Earth Systems Technology (JCET) and Goddard Space Flight Center (GSFC), USA



Name: Jan McGarry
Position: NASA Network Representative
Affiliation: NASA Goddard Space Flight Center, USA

Name: Michael Pearlman
Position: Ex-Officio, Director, ILRS Central Bureau
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Name: Jürgen Müller
Position: Lunar Representative
Affiliation: U. of Hannover/Institut für Erdmessung (IFE), Germany

Name: Bob Schutz
Position: IERS Representative to ILRS
Affiliation: Center for Space Research (CSR), University of Texas, USA



Name: Carey Noll
Position: Ex-Officio, Secretary, ILRS Central Bureau
Affiliation: NASA Goddard Space Flight Center, USA

Name: Wolfgang Seemueller
Position: Data Center Representative
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